

What is claimed is:

1. A composite comprising:
a plurality of filaments; and,
a plurality of matrix islands, each of said matrix islands connecting at least two
filaments so as to hold the plurality of filaments in a unitary structure.

2. The composite of claim 1, wherein the plurality of filaments are arranged in a
planar, essentially parallel array.

10 3. The composite of claim 1, wherein the plurality of filaments comprises individual
filaments having an average modulus of from about 300g/denier or greater and an
average tenacity of from about 7 g/denier or greater.

15 4. The composite of claim 1, wherein the volume ratio of matrix islands to the
plurality of filaments is approximately 0.4 or less.

5. The composite of claim 4, wherein the volume ratio of matrix islands to the
plurality of filaments is approximately 0.25 to about 0.02.

20 6. The composite of claim 5, wherein the volume ratio of matrix islands to the
plurality of filaments is approximately 0.2 to about 0.05.

25 7. The composite of claim 1, wherein the filaments are filaments selected from the
group consisting of ultra high molecular weight polyethylene, ultra high molecular
weight polypropylene, aramid, polyvinyl alcohol, polyacrylonitrile,
polybenzoxazole, polybenzothiazole, fiberglass, ceramic, and combinations thereof.

8. The composite of claim 7, wherein the plurality of filaments comprises ultra high
molecular weight polyethylene.

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incl
group 1
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9. The composite of claim 8, wherein the ultra high molecular weight polyethylene filament has a tenacity of from about 30 g/denier or greater and a modulus of from about 1500 g/denier or greater.

10. The composite of claim 7, wherein the plurality of filaments comprise aramid.

10 11. The composite of claim 1, wherein the matrix islands comprise a flexible composition selected from the group consisting of elastomers, thermoplastic elastomers, thermoplastics, thermosets, and combinations thereof.

12. The composite of claim 11, wherein the matrix islands comprise an elastomer.

13. The composite of claim 10, wherein the elastic matrix islands comprise a combination of two or more elastomers, thermoplastic elastomers and thermoplastics.

14. The composite of claim 1, wherein the domain matrix provides a robust structure of filaments.

20 15. The composite of claim 1, wherein each filament within the composite contacts at least one matrix island.

16. The composite of claim 15, comprising a plurality of matrix islands in a predetermined pattern.

25 17. A uni-directional tape comprising the composite of claim 1.

18. The composite of claim 1, wherein the average size of the matrix islands is less

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than 5mm in a planar dimension.

19. The composite of claim 1, wherein the average size of the matrix islands is less than 3mm in a planar dimension.

20. The composite of claim 1, wherein the average size of the matrix islands is less than 1mm in a planar dimension.

21. The composite of claim 1, wherein the composite possesses at least 70% flexibility of an uncoated, ballistically-effective fabric.

22. The composite of claim 1, wherein the composite possesses a flexibility of from about 0.7 or more.

15 23. The composite of claim 1, wherein the composite possesses a flexibility of from about 0.85 or more.

20 24. A method of making a composite comprising the steps of:
arranging a plurality of filaments in a fibrous web;
placing matrix islands within the plurality of filaments; and
causing each matrix island to connect at least two filaments in fixed
relationship.

25 25. The method of claim 24, wherein said placing step comprises spraying matrix
particles.

26. The method of claim 24, wherein said causing step is selected from the group
consisting of applying heat, applying pressure, and a combination thereof.

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